

## **REMARKS**

This amendment is submitted in response to the Examiner's Action dated May 9, 2006. Claims 1-15 have been amended herein and are currently pending.

### **OBJECTIONS TO THE SPECIFICATION**

Reference item 3 on page 2 of the Office Action notes that on paragraph 361, the word "computer" is misspelled as "comptutor." The specification has been amended to correct said misspelling and to further correct discrepancies between the specification and drawings relating to **FIGS. 16A-16C**.

Applicants appreciate the Examiner's careful review and feedback relating to the examination and condition of the present application.

### **CLAIM REJECTIONS UNDER 35 U.S.C. § 101**

Claims 1-15 have been rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter. Specifically, the Office Action asserts that absent an explicit and deliberate definition in the specification that the product includes as appropriate medium, the claims are directed to software *per se*. The Office Action further asserts that the claims do not produce a useful, tangible, and concrete result but merely recite carrying out a software algorithm.

Claims 11-15 have been amended to replace the previously recited "program product" with a "tangible computer-readable medium having encoded thereon in data storage media, computer-executable instructions for providing centralized access to count event information ...". As such, claims 11-15 are now expressly directed to an article of manufacture which meets the statutory requirements of 35 U.S.C. § 101. **FIGS. 1-2** and the specification at pages 16-18 and page 142 provides ample definition relating to computer-implemented, tangible media representative of exemplary computer-readable media.

With continued reference to the foregoing rejections of claims 11-15, and also in regard to the foregoing rejections of claims 1-10, Applicants note that the particular novel features of the presently claimed invention are primarily depicted and described on pages 103-110 with reference to **FIGS. 20A-20G** and pages 116-123 with reference to **FIGS. 21A-21D**. Applicants believe that the depiction/description of the data processing environments and tangible means for

performing steps and producing a concrete result described in **FIGS. 20A-20G** and pages 116-123 with reference to **FIGS. 21A-21D**, in conjunction with the depiction/description of a data processing system with reference to **FIGS. 1-2** sufficiently provides the support required to place claims 1-15 within the statutory requirements of 35 U.S.C. § 101.

### **CLAIMS REJECTIONS UNDER 35 U.S.C. § 112**

At reference item 7 on page 3 of the Office Action, claims 1-15 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Reference item 8 on page 3 more specifically asserts that the term “counter event” is defined in the specification as “...a sequence of signal values that indicate the occurrence of an event within a simulation model for which it would be *advantageous* to maintain a count.” The Office Action contends that the use of “advantageous,” which is not specifically defined, renders the claim indefinite.

As used in the foregoing passage, the term “advantageous” does not define, describe or otherwise characterize a count event *per se*. Instead, the term is used in the specification to describe an intended use and purpose of detecting and tracking count events. Since the term “advantageous” is not included in the claim language and is not required to characterize the nature of what a count event actually is, Applicants respectfully disagree with the grounds for rejecting claims 1-15 under 35 U.S.C. § 112, second paragraph, and request that these rejections be withdrawn.

The foregoing traversal notwithstanding, Applicants understand that the voluminous specification makes it difficult to ascertain specification support for claim terminology. Applicants note that the particular novel features of the presently claimed invention are primarily depicted and described on pages 103-110 with reference to **FIGS. 20A-20G** and pages 116-123 with reference to **FIGS. 21A-21D**, which amply and specifically support claim terms such as “count event data” (see **FIGS. 20B, 20C, and 20D** depicting count event packet **2010** containing count event data within count data storage files **2001**) and “counter report” (see **FIGS. 20F, 20G, and 21A** depicting counter output reports **2060** and **FIG. 21B** depicting counter output reports **2110A** and **2110B** received by count difference analyzer **2100**).

## **CLAIM REJECTIONS UNDER 35 U.S.C. § 102**

Claims 1, 5, 6, 10, 11, and 15 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 5,850,345, issued to Son (hereinafter “*Son*”). Claims 1, 6, and 11 have been rejected under U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 6,470,478, issued to Bargh et al. (hereinafter “*Bargh*”).

Regarding the rejections of independent claims 1, 6, and 11 under *Son*, reference item 11 on page 4 of the Office Action asserts that *Son* discloses a method for providing centralized access to count event information from testing of a hardware simulation model within a batch simulation farm including steps of “receiving count event data for said hardware simulation model within said instrumentation server from one or more simulation clients” (col. 8, lines 60-62; **FIG. 1**, col. 8, lines 23-31, and col. 8, lines 32-46); “generating a first and a second counter report for said hardware simulation model, wherein said first and second counter reports are derived from said count event data received by said instrumentation server” (**FIG. 3**, col. 10, lines 45-59); “comparing said first counter report to said second counter report” (col. 10, lines 59-64; col. 10, line 65 through col. 11, line 5); and “responsive to said comparison, generating a counter difference report within said instrumentation server that conveys count event trends associated with said simulation model under different simulation testcases” (col. 9, lines 44-60; col. 1, lines 60-66).

Regarding the rejection of independent claims 1, 6, and 11 under *Bargh*, reference item 12 on page 5 of the Office Action asserts that *Bargh* discloses all elements of claims 1, 6, and 11.

*Son* discloses a simulation apparatus and method in which a supervising device supervises a simulation device which performs synchronized assembly line simulation. In concert with its supervising function, the supervising device comprises a simulation controller having a simulation time counter and a simulation time determination device (see blocks 33, 38 and 39 of **FIG. 1**) for counting time of simulation and marking when the simulation began. *Son*’s description includes no disclosure relating to HDL batch simulation farm processing.

*Bargh* includes disclosure that relates to many of concepts contained in Applicants’ specification including testcase processing of HDL models and instrumenting HDL models to detect and record “count events.” Applicants note, in fact, that **FIGS. 1-7** of *Bargh* are substantially identical to **FIGS. 1-7** of Applicants’ drawings. However, nothing in *Bargh* relates

to processing data collected in a batch simulation farm such as claimed and described in Applicants' specification with reference to **FIGS. 20 and 21**.

As explained with reference to **FIGS. 20A-20G and 21A-21D**, Applicants' invention addresses logistical issues and problems arising in HDL batch simulation farms in which several dozen or more simulation clients may be simultaneously and/or sequentially processing many simulation testcases for a given HDL model and/or for multiple different HDL models. The simulation clients on which the models are loaded and on which the testcase simulations are run communicate with an instrumentation server to facilitate tracking of instrumentation events, such as counts, fails, harvests, etc., that are detecting using HDL-style instrumentation entities.

Independent claims 1, 6, and 11 have been amended to more clearly and specifically characterize and distinguish Applicants' proposed invention from the disclosures of *Bargh* and *Son*. Specifically, method claim 1 (representative also of analogous system and article of manufacture claims 6 and 11), has been amended to expressly recite that the simulation models in question are hardware description language models that are processed in a batch simulation farm. Claim 1 has been further amended to more specifically convey that the count event data "represents sequences of signal values that indicate the occurrence of events triggered during simulation testing of HDL models by the simulation clients." Since "count event data" is utilized in the claim body, the foregoing definition forms a substantive claim limitation via antecedent basis in the amended claims. While *Bargh* does disclose HDL model processing and "count events," nothing in *Son* relates to processing HDL models or data obtained from HDL model testing.

Amended claim 1 also specifically defines the manner in which two different sets of count event data are processed including generating a first counter report from a first set of count event data and generating a second counter report from a second set of count event data in which each set of the respective sets of count event data is collected for a different simulation test (i.e. a first and second simulation tests) of the *same* HDL model (see antecedent relation among the elements). Nothing in *Bargh* or *Son* relates to obtaining independently collected count event data for a common simulation model and generating counter reports therefrom. At col. 10, lines 45-59, *Son* describes updating a simulation time width  $\Delta t$  and explains use of an index pointer but does not disclose a counter report that "specifies a number of occurrences of one or more

count events” for a specified first or second simulation test and further “specifies a number of simulation cycles” over which the first/second simulation test was processed as recited in claim 1.

Amended claim 1 furthermore expressly recites that the counter reports are compared using a normalization technique that uses the number of simulator cycles specified in each of the reports to normalize the respective numbers of count event occurrences specified by the reports. Nothing in *Bargh* or *Son* relates to using numbers of simulation cycles to normalize count event occurrences. The Office Action points to **FIG. 7** of *Son* as disclosing “computing a count normalization factor between count data contained within said first and second counter reports utilizing the simulator cycle count field values contained in said first and second counter reports.” The description of **FIG. 7** at col. 2 appears to disclose a technique for adjusting a time variable to achieve/maintain synchronicity between simulations, but does not appear to disclose a normalization procedure.

Finally, amended claim 1 recites that the instrumentation server generates “a counter difference report that specifies one or more count events for which the determined difference in the normalized numbers of occurrences of corresponding count events exceeds a pre-specified difference threshold.” In this manner, the invention enables test and simulation personnel and devices to track abrupt changes in count event occurrences for a given HDL model in an environment in which the model may be simultaneously and/or sequentially tested on multiple simulation clients. Nothing in *Bargh* or *Son* discloses or suggests generating a counter difference report that specifies one or more count events for which the determined difference in the normalized numbers of occurrences of corresponding count events exceeds a pre-specified difference threshold.

#### **CLAIM REJECTIONS UNDER 35 U.S.C. § 103**

Claims 2-4, 7-9, and 12-14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Son* and in further view of taken Official Notice.

Claims 2-4, 7-9, and 12-14 are directly or indirectly dependent on the independent claims 1, 6, and 11 which, as contended above, have been amended to overcome the rejections under the *Son* and *Bargh* references. By extension, the rejections of claims 2-4, 7-9, and 12-14 have been overcome.

### CONCLUSION

For the foregoing reasons, Applicants submit that claims 1, 6, and 11 and all claims depending therefrom are patentably distinct from the disclosures of *Bargh, Son*, and all other prior art known to the Applicants. Applicants have diligently responded to the Office Action by amending the claims and clarify features within specific claims. Believing the foregoing objections and rejections overcome, Applicants respectfully request issuance of a Notice of Allowance for all claims now pending.

Applicants invite the Examiner to contact the undersigned attorney of record at 512.343.6116 if such would further or expedite the prosecution of the present Application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Matthew W. Baca', written over a horizontal line.

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